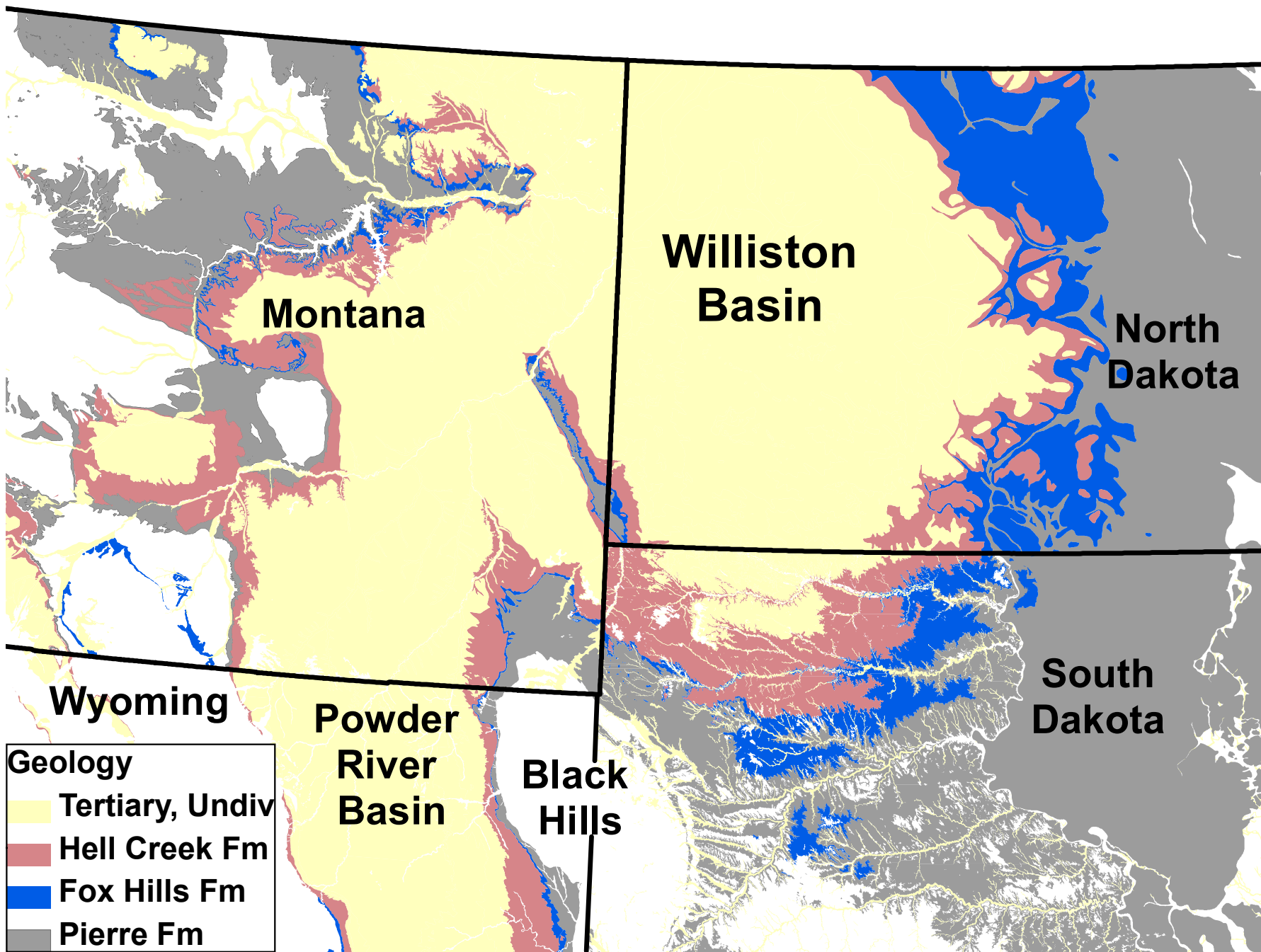


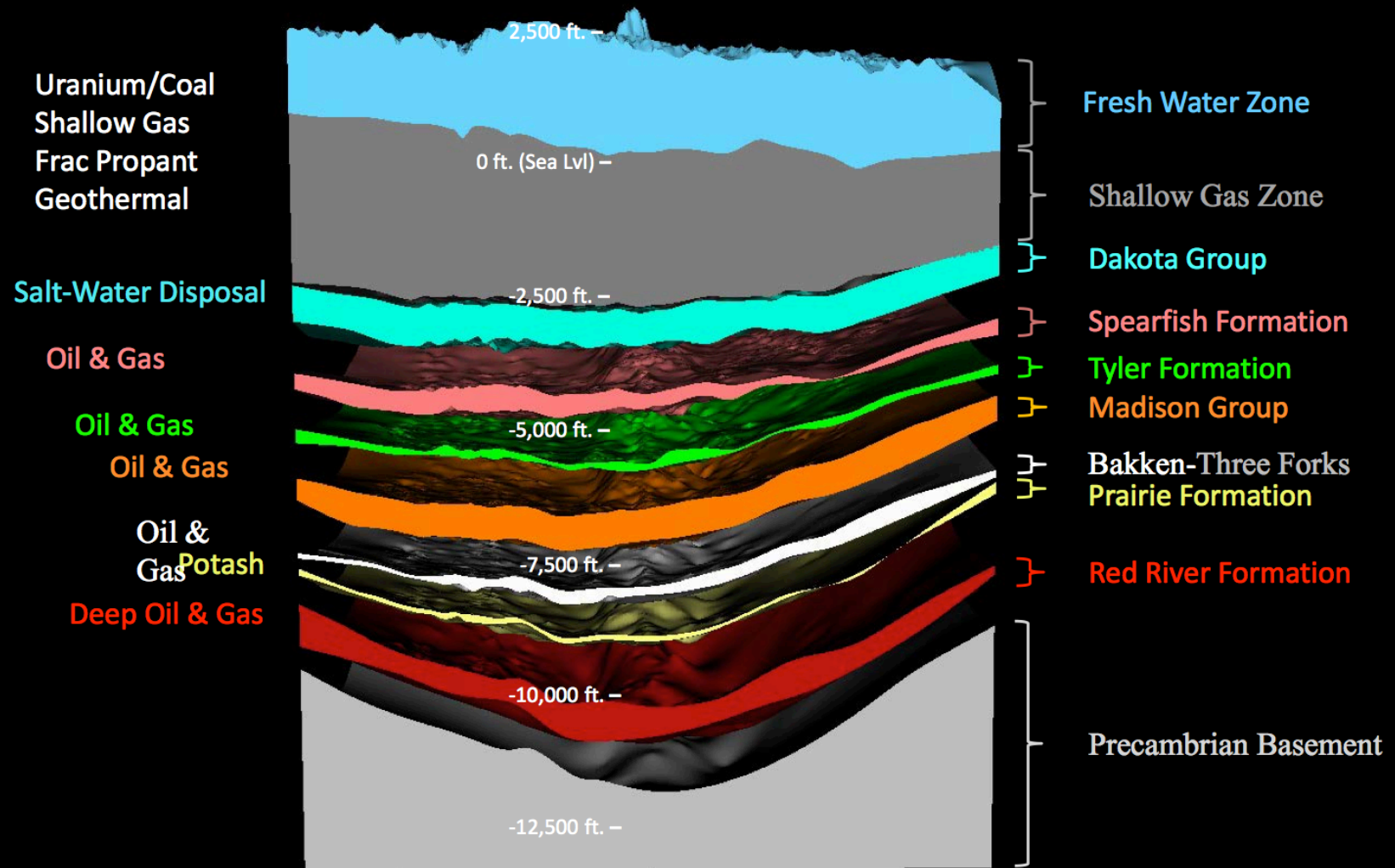
Oil Development in North Dakota

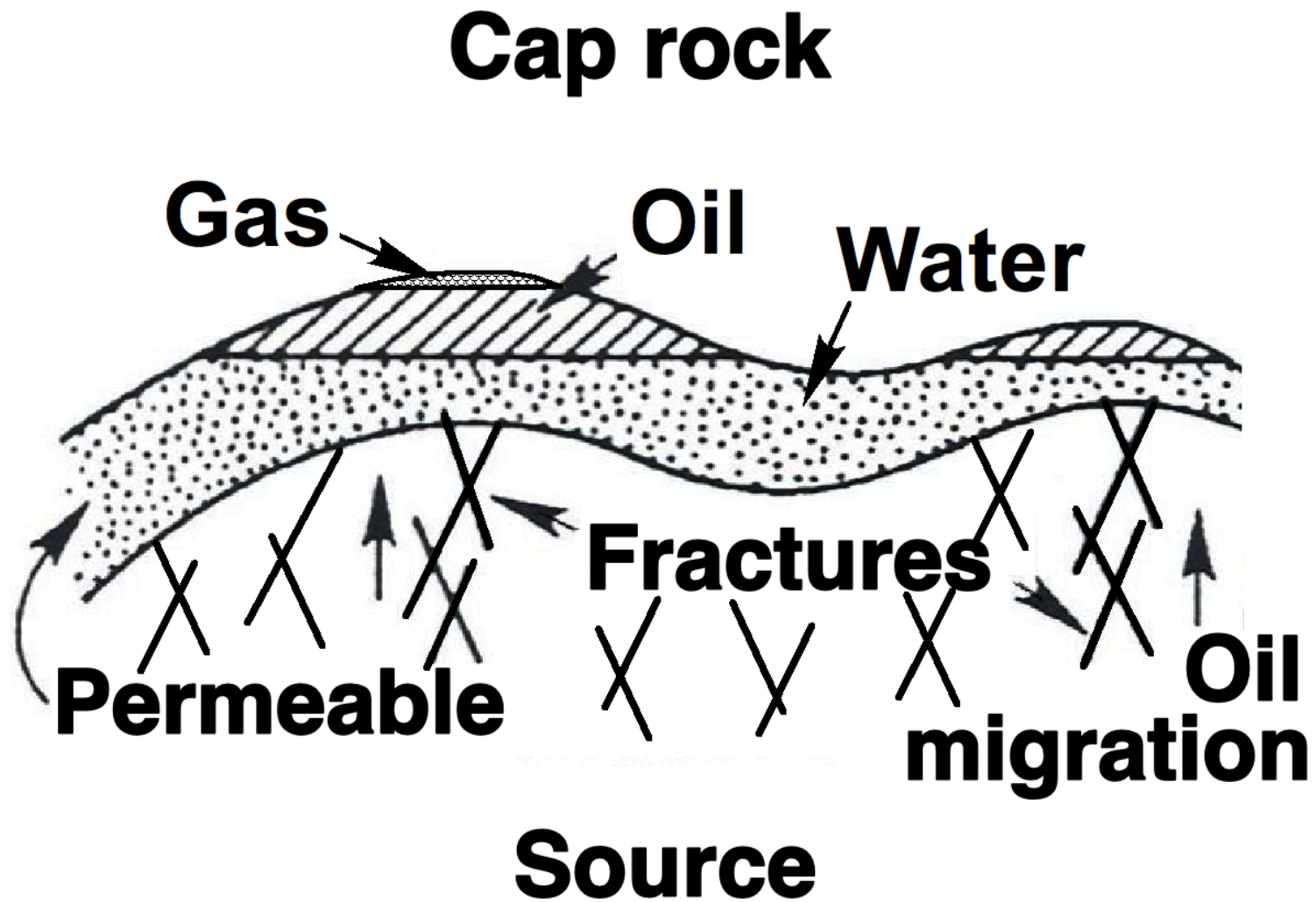
Office of the State Engineer

Alan Wanek



Three-Dimensional Geologic Model of Northwestern North Dakota

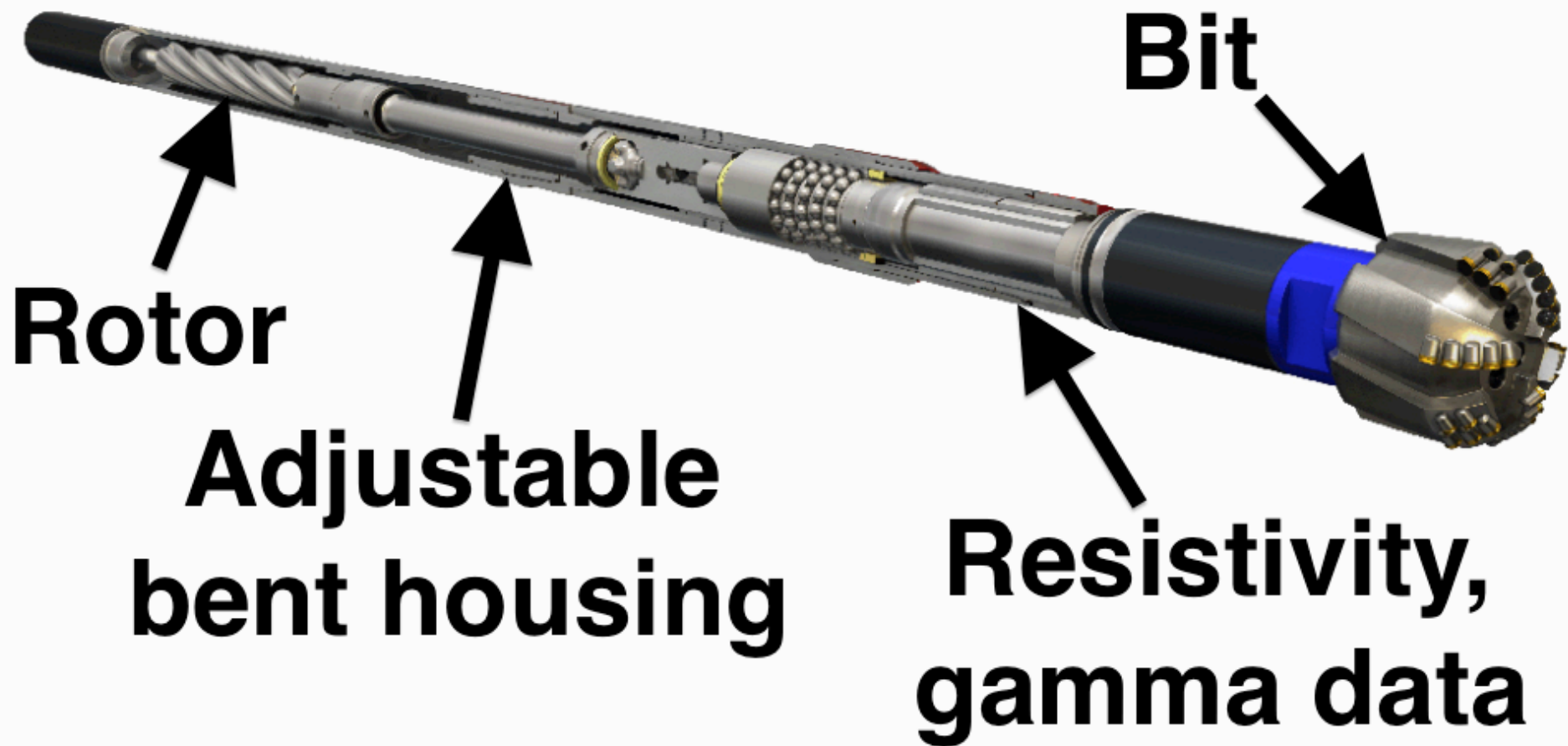




Going to the Source

Bakken Fm.: - High organic content
 - Low permeability

To develop: - Horizontal drilling to increase
 completion interval
 - Hydraulic fracturing to
 increase secondary (fracture)
 permeability

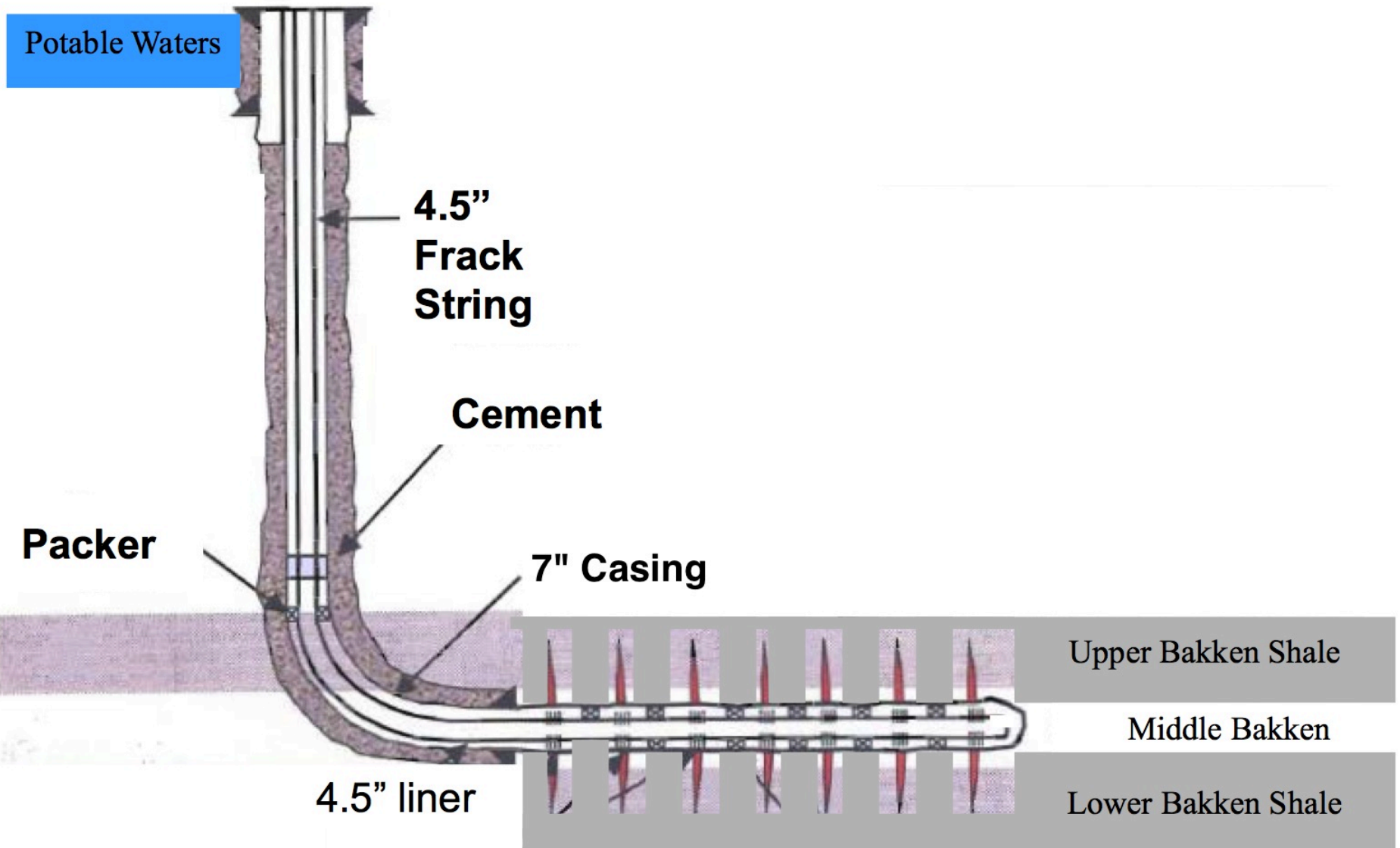


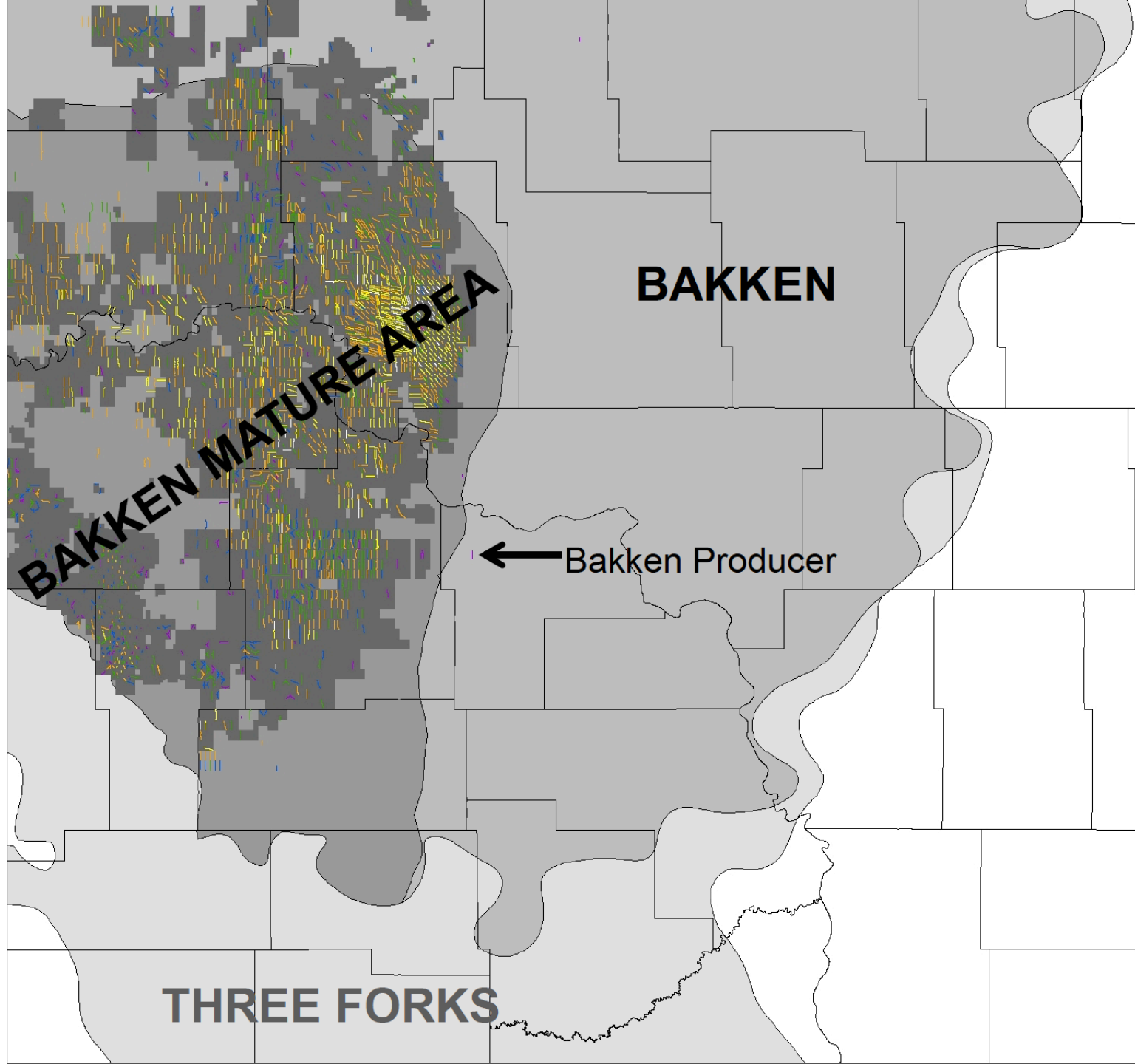
Mud motor

Hydraulic Fracturing

- Increase pressure to exceed least principal stress + tensile strength of rock
- Form vertical fracture surfaces extending
10's of feet vertically
100's of feet horizontally

TYPICAL HORIZONTAL OIL WELL

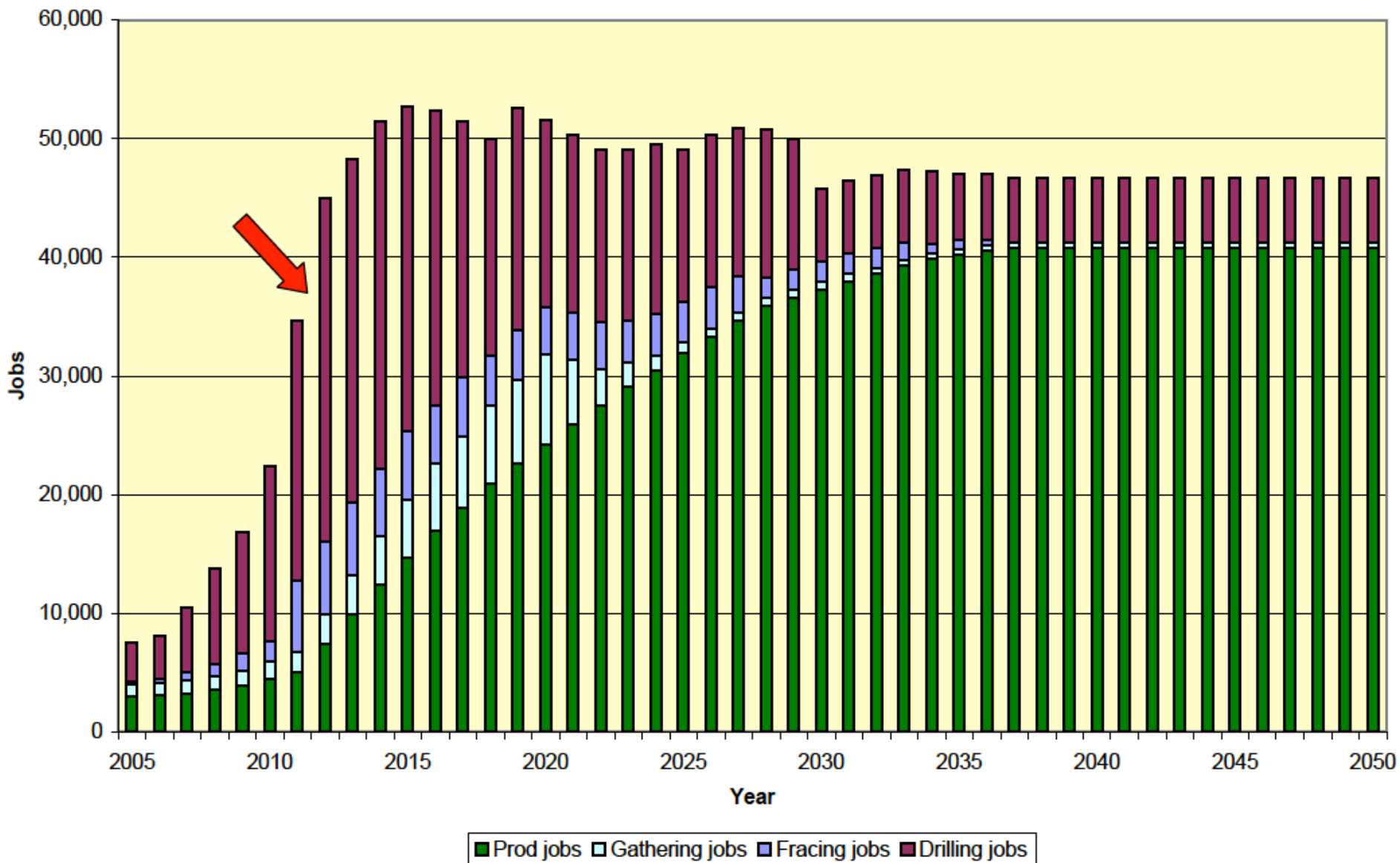


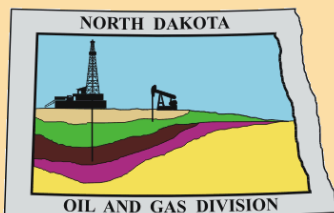


Western North Dakota

- 1,100 to 2,700 wells/year = 2,000 expected
 - 100-225 rigs = 12,000 – 27,000 jobs
 - Another 10,000-15,000 jobs building infrastructure
 - 225 rigs can drill the wells needed to secure leases in 2 years
 - 225 rigs can drill the wells needed to develop spacing units in 16 years
 - 35,000-40,000 new wells = 35,000-40,000 long term jobs

North Dakota Oil Industry Jobs





dmr.nd.gov/oilgas/

Welcome to the North Dakota Industrial Commission, Department of Mineral Resources, Oil and Gas Division, home page.

[Director's Cut - 04/11/2012](#) and [Recent Presentations](#)

The Director's Cut is an update on current activity in the North Dakota oil patch from the Director of the Department of Mineral Resources. ([View past Director's Cuts](#))

View the [latest press releases](#) from the Oil and Gas Division

Recent Presentations

GIS Map Server

New!

Proposed Rule changes for Geologic Storage of Carbon Dioxide.
See the [proposed rule changes](#), [full notice](#) or [comment](#).

Oil & Gas and Geophysical Exploration Rule Changes

[Rule changes](#) approved by the Commission became effective April 1st, 2012.
Additional clarification on rule changes can be found in [rule changes for non-regulators](#) (Revised April 13, 2012).

Bakken and Three Forks Information!

There is currently **one** job opening available for a [Petroleum Engineer](#) **one** job opening available for a [Engineering Technician IV](#) located in the Williston Field Office, and **one** job opening available for a [Engineering Technician IV](#) located in the Dickinson Field Office.

Available on the ND Petroleum Council web site are the [Surface Owner Information Center](#), the [Royalty Owner Information Center](#) and the PowerPoint presentations that were used at the [2010 Williston Basin Petroleum Conference](#).

The Oil and Gas Division regulates the drilling and production of oil and gas in North Dakota. Our mission is to encourage and promote the development, production, and utilization of oil and gas in the state in such a manner as will prevent waste, maximize economic recovery, and fully protect the correlative rights of all owners to the end that the landowners, the royalty owners, the producers, and the general public realize the greatest possible good from these vital natural resources.

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Bismarck, ND 58505-0840

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NDIC Oil and Gas Division
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Bismarck, ND 58503-5512

Core and Samples Shipping:

ND Geological Survey Core Library
2835 Campus Rd., Stop 8156
Grand Forks, ND 58202



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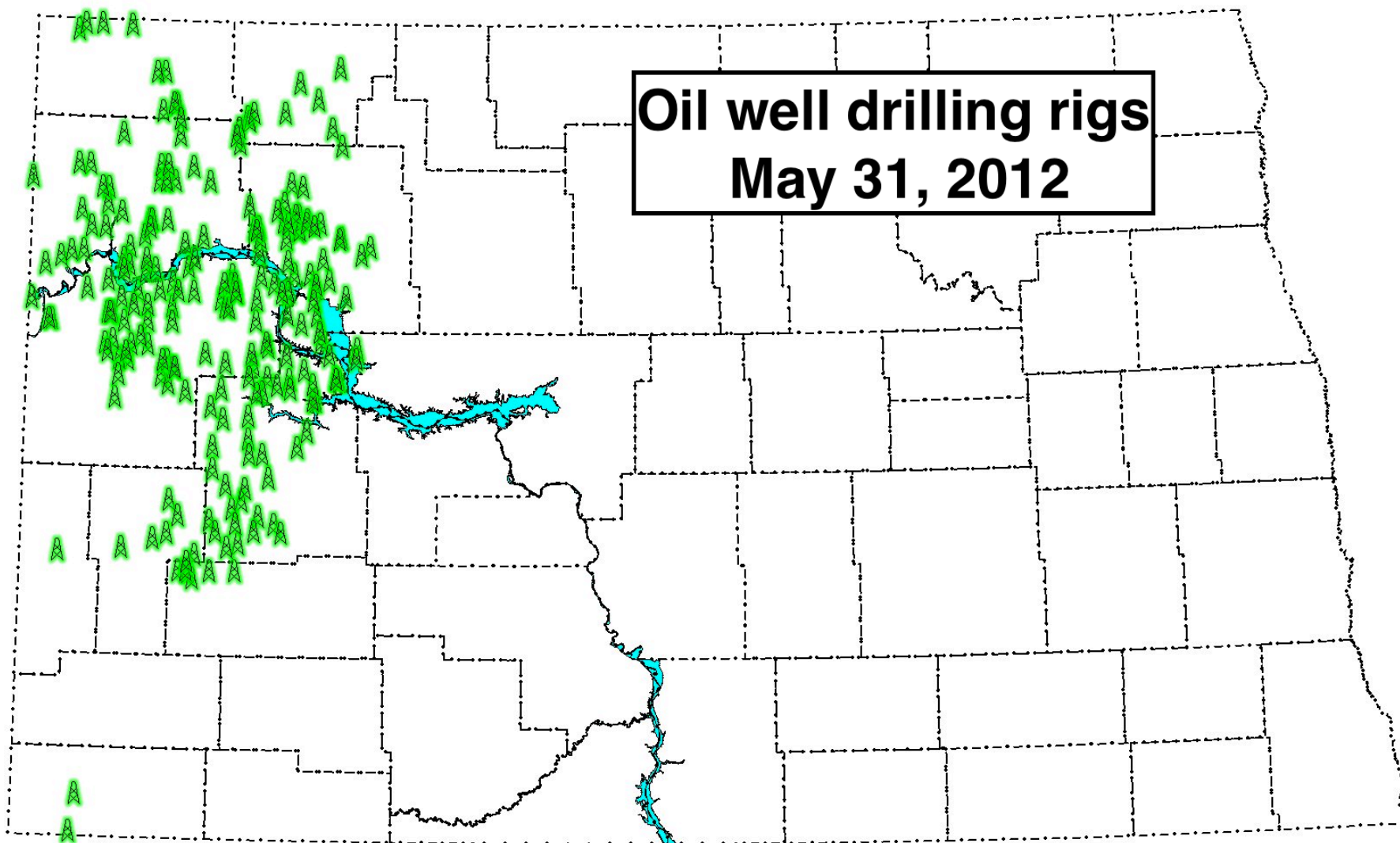


Flash Player is required to view some content on this web site.



This web site was developed in cooperation with the Ground Water Protection Council (GWPC) and the Department of Energy (DOE) using the [Risk Based Data Management System](#) (RBDMS). RBDMS is a winner of a DOE Energy 100 Award.

**Oil well drilling rigs
May 31, 2012**



Operating water depots May 30, 2012

